

SINTERED POLYCRYSTALLINE GALLIUM NITRIDE AND ITS PRODUCTION

ABSTRACT OF THE DISCLOSURE

Polycrystalline gallium nitride (GaN) characterized by having the atomic fraction of gallium ranging from between about 49% to 55%, an apparent density of between about 5.5 and 6.1 g/cm³, and a Vickers hardness of above about 1
5 GPa. Polycrystalline GaN can be made by hot isostatic pressing (HIPing) at a temperature ranging from about 1150° C to 1300° C and a pressure ranging from between about 1 and 10 Kbar. Alternatively, polycrystalline GaN can be made by high pressure/high temperature (HP/HT) sintering at a temperature ranging from about 1200° to 1800° C and a pressure ranging from about 5 to 80 Kbar.